Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method of coding digital data for transmission according to a trellis coding system having a predetermined number of (N) states and a predetermined number of (M) state transitions from each state, wherein the data is arranged in a series of frames, a state is associated with each frame to determine a coding strategy for the frame, and a look-ahead depth (D) representing a number of data frames is selected, comprising:

assigning an initial state for a first frame of the series of data frames, and assigning states for the subsequent data frames in the series of data frames up to the look-ahead depth according to a predetermined valid trellis path;

sequentially fetching subsequent data frames in the series and determining respective states therefor based on a path metric for state transitions computed over the number of frames represented by the look-ahead depth; and

coding the data frames for transmission according to the coding strategies corresponding to the states assigned or determined for the frames, wherein the series of data frames ~~are~~ are coded for a shaped spectrum upon transmission thereof.

2. (Currently Amended) The method of claim 1, wherein fetched data frames are buffered over said look-ahead depth from a current frame X_i to a look-ahead depth frame X_{i+D} where i represents the data frame interval.

3. (Previously Presented) The method of claim 2, wherein node information for nodes representing possible state transitions at the look-ahead depth are stored in a node memory in an ordered array, and wherein the coding strategy for the current data frame X_i is determined on the basis of a node selected at the look-ahead depth according to said path metric.

4. (Previously Presented) The method of claim 3, wherein the node information in said node memory is replaced for each new data frame in the series.

5. (Previously Presented) The method of claim 3, wherein the coding strategy for the current data frame X_i is determined according to a state transition from the state associated with said current frame that is determined by a comparison of the position of the node selected at the look-ahead depth with at least one predetermined threshold.

6. (Currently Amended) A data encoder for generating spectrally-shaped coded data according to a trellis coding system, wherein the data are arranged in a series of data frames from a data source and a trellis state is associated with each data frame such that a coding scheme for each frame may be determined on the basis of transitions of states for frames over a selected look-ahead depth (D) comprising:

a buffer memory coupled to the data source for buffering data frames in the series of data frames by the selected look-ahead depth (D);

a metric computation and trellis extension engine coupled to sequentially receive said data frames from the data source and determine node information in a plurality of nodes for each said frame representing possible states, state transitions from a preceding frame, and path metrics for the state transitions;

a current state storage coupled to the metric computation and trellis extension engine for storing the state of a current frame in the series of data frames;

a node memory coupled to the metric computation and trellis extension engine for storing said node information for nodes of a frame succeeding the current frame by the look-ahead depth;

a coding scheme memory for storing a correlation between state transitions and respective coding schemes; and

a processing circuit coupled to the coding scheme memory and to the metric computation and trellis extension engine for applying a selected coding scheme to a data frame to generate spectrally-shaped coded data;

said metric computation and trellis extension engine is configured to determine the selected coding scheme for the current frame according to the state ~~Stored~~ stored in the current state storage and a node for the frame succeeding the current frame by the look-ahead depth that is selected on the basis of the path metric for the node,

the metric computation and trellis extension engine assigning an initial state for a first frame of the series of data frames, and assigning states for the subsequent data frames in the series of data frames up to the look-ahead depth according to a predetermined valid trellis path.

7. (Currently Amended) The encoder of claim 6 wherein, for the first frames within the look-ahead depth of the series of data frames, states and state transitions are assigned according to ~~a~~ the predetermined valid trellis path.

8. (Previously Presented) The encoder of claim 6, wherein for each said data frame received by the metric computation and trellis extension engine the node information in the node memory is replaced with new node information representing the received data frame and the possible state transitions from the preceding data frame.

9. (Previously Presented) The encoder of claim 8, wherein the node information for the nodes is stored in linear array in said node memory, and wherein the coding scheme for the current frame is determined according to the position of the selected node within the node memory linear array.

10. (Previously Presented) A data encoder for generating spectrally-shaped coded data according to a trellis coding system wherein the data are arranged in a series of data frames from a data source and a trellis state is associated with each data frame such that a coding scheme for each data frame may be determined on the basis of transitions of states for frames over a selected look-ahead depth, the data encoder comprising:

a metric computation and trellis engine configured to sequentially receive the data frames from the data source and to determine node information in a plurality of nodes for each

said data frame representing possible states, state transitions from a preceding data frame, and path metrics for the state transitions, the metric computation and trellis engine configured to assign an initial state for a first frame of the series of data frames, and to assign states for subsequent data frames in the series of data frames up to the look-ahead depth according to a predetermined valid trellis path, and to sequentially fetch subsequent data frames in this series of data frames and to determine respective states therefor based on a path metric for state transitions computed over the number of frames represented by the look-ahead depth; and

a processing circuit coupled to the metric computation and trellis engine and configured to apply a selected coding strategy to the data frames to generate spectrally-shaped coded data for transmission, the coding strategy selected on the basis of the node selected at the look-ahead depth according to the path metric.

11. (Previously Presented) A data encoder for generating spectrally-shaped coded data according to a trellis coding system wherein the data are arranged in a series of data frames from a data source and a trellis state is associated with each data frame such that a coding scheme for each data frame may be determined on the basis of transitions of states for frames over a selected look-ahead depth, the data encoder comprising:

a metric computation and trellis engine configured to sequentially receive the data frames from the data source and to determine node information in a plurality of nodes for each said data frame representing possible states, state transitions from a preceding data frame, and path metrics for the state transitions, the metric computation and trellis engine configured to assign an initial state for a first frame of the series of data frames, and to assign states for subsequent data frames in the series of data frames up to the look-ahead depth according to a predetermined valid trellis path, and to sequentially fetch subsequent data frames in this series of data frames and to determine respective states therefor based on a path metric for state transitions computed over the number of frames represented by the look-ahead depth; and

a processing circuit coupled to the metric computation and trellis engine and configured to apply a selected coding strategy to the data frames corresponding to the states assigned or determined for the data frames to generate spectrally-shaped coded data for

transmission, the coding strategy selected on the basis of the node selected at the look-ahead depth according to the path metric.

12. (Previously Presented) A data encoder for generating spectrally-shaped coded data according to a trellis coding system wherein the data are arranged in a series of data frames from a data source and a trellis state is associated with each data frame such that a coding scheme for each data frame may be determined on the basis of transitions of states for frames over a selected look-ahead depth, the data encoder comprising:

a metric computation and trellis engine configured to sequentially receive the data frames from the data source and to determine node information in a plurality of nodes for each said data frame representing possible states, state transitions from a preceding data frame, and path metrics for the state transitions, the metric computation and trellis engine configured to assign an initial state for a first frame of the series of data frames, and to assign states for subsequent data frames in the series of data frames up to the look-ahead depth according to a predetermined valid trellis path, and to sequentially fetch subsequent data frames in this series of data frames and to determine respective states therefor based on a path metric for state transitions computed over the number of frames represented by the look-ahead depth;

a coding scheme memory coupled to the metric computation and trellis engine and configured to store state transition information correlating state transitions to respective coding strategies; and

a processing circuit coupled to the metric computation and trellis engine and configured to apply a selected coding strategy to the data frames to generate spectrally-shaped coded data for transmission, the coding strategy selected on the basis of the node selected at the look-ahead depth according to the path metric.

13. (Previously Presented) A data encoder for generating spectrally-shaped coded data according to a trellis coding system wherein the data are arranged in a series of data frames from a data source and a trellis state is associated with each data frame such that a coding

scheme for each data frame may be determined on the basis of transitions of states for frames over a selected look-ahead depth, the data encoder comprising:

a metric computation and trellis engine configured to sequentially receive the data frames from the data source and to determine node information in a plurality of nodes for each said data frame representing possible states, state transitions from a preceding data frame, and path metrics for the state transitions, the metric computation and trellis engine configured to assign an initial state for a first frame of the series of data frames, and to assign states for subsequent data frames in the series of data frames up to the look-ahead depth according to a predetermined valid trellis path, and to sequentially fetch subsequent data frames in this series of data frames and to determine respective states therefor based on a path metric for state transitions computed over the number of frames represented by the look-ahead depth;

a coding scheme memory coupled to the metric computation and trellis engine and configured to store state transition information correlating state transitions to respective coding strategies; and

a processing circuit coupled to the metric computation and trellis engine and configured to apply a selected coding strategy to the data frames corresponding to the states assigned or determined for the data frames to generate spectrally-shaped coded data for transmission, the coding strategy selected on the basis of the node selected at the look-ahead depth according to the path metric.

14. (Previously Presented) A data encoder for generating spectrally-shaped coded data according to a trellis coding system wherein the data are arranged in a series of data frames from a data source and a trellis state is associated with each data frame such that a coding scheme for each data frame may be determined on the basis of transitions of states for frames over a selected look-ahead depth, the data encoder comprising:

a metric computation and trellis engine configured to sequentially receive the data frames from the data source and to determine node information in a plurality of nodes for each said data frame representing possible states, state transitions from a preceding data frame, and path metrics for the state transitions, the metric computation and trellis engine configured to

assign an initial state for a first frame of the series of data frames, and to assign states for subsequent data frames in the series of data frames up to the look-ahead depth according to a predetermined valid trellis path, and to sequentially fetch subsequent data frames in this series of data frames and to determine respective states therefor based on a path metric for state transitions computed over the number of frames represented by the look-ahead depth;

a coding scheme memory coupled to the metric computation and trellis engine and configured to store state transition information correlating state transitions to respective coding strategies;

a node memory coupled to the metric computation and trellis engine and configured to store in an ordered array node information representing possible state transitions for nodes of a data frame succeeding the current frame by the look-ahead depth; and

a processing circuit coupled to the metric computation and trellis engine and configured to apply a selected coding strategy to the data frames to generate spectrally-shaped coded data for transmission, the coding strategy selected on the basis of the node selected at the look-ahead depth according to the path metric.

15. (Previously Presented) A data encoder for generating spectrally-shaped coded data according to a trellis coding system wherein the data are arranged in a series of data frames from a data source and a trellis state is associated with each data frame such that a coding scheme for each data frame may be determined on the basis of transitions of states for frames over a selected look-ahead depth, the data encoder comprising:

a metric computation and trellis engine configured to sequentially receive the data frames from the data source and to determine node information in a plurality of nodes for each said data frame representing possible states, state transitions from a preceding data frame, and path metrics for the state transitions, the metric computation and trellis engine configured to assign an initial state for a first frame of the series of data frames, and to assign states for subsequent data frames in the series of data frames up to the look-ahead depth according to a predetermined valid trellis path, and to sequentially fetch subsequent data frames in this series of

data frames and to determine respective states therefor based on a path metric for state transitions computed over the number of frames represented by the look-ahead depth;

a coding scheme memory coupled to the metric computation and trellis engine and configured to store state transition information correlating state transitions to respective coding strategies;

a node memory coupled to the metric computation and trellis engine and configured to store in an ordered array node information representing possible state transitions for nodes of a data frame succeeding the current frame by the look-ahead depth; and

a processing circuit coupled to the metric computation and trellis engine and configured to apply a selected coding strategy to the data frames corresponding to the states assigned or determined for the data frames to generate spectrally-shaped coded data for transmission, the coding strategy selected on the basis of the node selected at the look-ahead depth according to the path metric.